NORTHERN ARIZONA UNIVERSITY College of Engineering, Forestry, and Natural Sciences

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Project Title:	Boston University - Microfluid Experimentation Data Generator
Deliverable:	D_2_1 - Vision Document
Course:	CS386 – Spring 2017
Instructor:	Professor Gerosa
Github:	https://github.com/TheAwesomeEgg/CS386ProjectGroup1.git

Introduction

The purpose of this document is to define the view of the stakeholders for the solution that we plan to develop. We define this view in terms of the key needs and features that the stakeholders have communicated to us based on their requests and constraints. This document is based on a vision template provided by the Eclipse organization.

Positioning

In this section, we will describe the problem our solution was derived from as well as the position the product will fill in terms of the scope of the problem.

Problem Statement

An interdisciplinary, research team at Boston University is currently in need of a system to efficiently communicate instructions to experimental hardware. This lack of a system currently affects all team members and research affiliates. Without a system in-place, the team cannot make significant progress with their work. A successful solution would be portable, easy to use, and easy to extend, allowing the users to communicate with the experimental hardware.

Product Position Statement

The product is intended for the Microfluidics research team at Boston University, but is not exclusive and can be used by other groups if necessary. The product will be a web application that generates an instruction set to communicate with experimental hardware. The product is intended to save the user from unnecessary manual entry of instructions.

Stakeholder Descriptions

The purpose of this section is to describe the stakeholders for whom the product is targeted towards. We will also detail the intended user's working environment with which they will use our product.

Name	Description	Responsibilities
Taylor Walker	Northern Arizona University computer science student.	Taylor currently studies computer science at Northern Arizona University and was chosen to be interviewed because he is a great representation of somebody who could be a user of the Neptune system, but is not affiliated with Bostin University, and would be approaching the software from an outside prospective.
Shane McCormack	Member of the Boston University research team behind the Neptune project.	Shane is currently an undergrad student at Boston University studying both computer engineering and biomedical engineering. He oversees much of the software development relating to the Neptune project and plans to continue this into his postgrad studies.
Brad Gibbons	Kansas University computer engineering student.	Brad Gibbons is a computer engineering student at Kansas University and studies topics like assembly language programming, embedded systems, and computer hardware. He was chosen to be interviewed because he could offer a uniquely technical perspective to how he likes to see his software operate under the hood.
Anish Asthana	Boston University computer engineering student. Colleague of Shane McCormack and likely user of the Neptune system upon completion.	Anish studies computer engineering at Boston University alone side Shane McCormack. He was chosen to be interviewed not only because he is a possible user of the completed Neptune system, but because he a good representation of a power user and could give us insight into some of the concerns and opinions that may be different from more casual computer users.

Table 1: Stakeholder Descriptions

User Environment

The target user works in a variety of working environments: Mac OS X, Windows 10, and Linux distributions. Our application must support the working environments they are currently using, but we will not need to support future systems. There are four primary users who the product directly applies to, but there may be more in the future. The current users are forced to manually enter data and this is time consuming. Our product will have not have to integrate with any other applications, but we will need to comply with the instructions supported by the hardware.

Product Overview

The following section serves to provide a well-documented list of the needs and features the product will support.

Needs and Features

Listed below is a table that summarizes the needs and features of the application.

Need	Priority	Features	Planned Release
Usability	High	Easy to navigate, and low learning curve	End of cycle
Command Conversion	High	Translate commands into instructions	End of cycle
File Manipulation	High	Must be able to read and interpret files – as well as – write files appropriately	End of cycle
Reliability	High	Commands must correctly be converted to ensure that experimental results are not skewed	End of cycle
Speed	Low	Instruction generation must be relatively fast, but as this will most likely be apparent due to the nature of the program, we set the priority to low	End of cycle

Table 2: Needs and Features

Other Product Requirements

This final section exists solely to describe any other requirements of the product that may not have been described in the previous section, but that we will strive to accomplish with the release of the product.

Requirement	Priority	Planned Release
Extensibility	Low	End of cycle
Portability	High	End of cycle
User Interface	Medium	End of cycle

Table 3: Additional Requirements

Conclusion

This concludes the vision document. We are particularly satisfied with the needs of the stakeholder as we believe we can reliably assure those needs in a timely fashion.